## Class Size And Teacher Load

Successful instruction in the arts requires the same elements as instruction in any other discipline, including careful planning, assessment of each individual student and remediation for students who are struggling. Arts teachers' assignments must, therefore, include a reasonable number of classes, students and preparation periods. Class sizes should permit adequate attention to each student's instructional needs and appropriate evaluation of each student's progress. The average class size for most arts classes should, therefore, be the same as for other comparable classes in the school. Offering each student an appropriate amount of instructional time (see Instructional Time recommendations on pages 147 and 148) and providing a reasonable schedule for teachers (see Scheduling section) results in an appropriate student-to-teacher ratio.

Arts classes involving safety concerns – such as the photography lab or pottery or dance studio – require a smaller class size than average, so the teacher can provide careful supervision. Music ensemble classes typically are larger than the school average, but that large size should be balanced by opportunities for students to meet with the teacher in smaller groups, such as lesson classes or chamber ensembles. Ensemble members have the same need for individual attention as students in other classes. If the average size of the combined large- and small-group meetings is typical of other classes, then it provides optimal opportunities for learning.

Consider, for example, an elementary school with an average class size of 21, a six-hour school day and which provides each student with the 90 minutes per week of arts instruction recommended in the national opportunity-to-learn standards. If each student has art twice weekly for 45 minutes, and if the art teacher has a 45-minute daily planning period as well as five minutes of transition time between classes, then the teacher would teach five or six classes per day and service approximately 14 different classes during 28 instructional periods over the course of the week. This would result in a student-to-teacher ratio of 294-to-1, which is a challenging, but manageable, load for most elementary arts teachers.

Similarly, maintaining appropriate instructional time and class size at the secondary level should result in a reasonable student-to-teacher ratio and provide students with opportunities to receive the individual attention they need. Consider, for example, a high school in which the average class size is 25, classes meet for 50-minute periods and the music teacher teaches both ensemble and general music classes. The teacher has two ensembles of 50 students each, and students receive additional instruction for one 50-minute period each week in smaller groups averaging 10 students. In this schedule the teacher teaches an additional 10 periods of these small-group lessons and students receive an average of [(250 ensemble minutes per week / 50 students) + (50 small group minutes per week / 10 students) = ] 10 teacher minutes per week, the same number as would be received by a math student in a class of 25 that meets five days per week. With a daily piano/keyboard or music composition class of 25 students, the teacher is teaching 125 students per week over 25 class periods, the same load as other teachers, and the average music student is receiving 10 minutes of teacher attention per week, the same amount as students in other classes.

## Instructional Facilities

Appropriate instructional facilities are essential in order to provide students with quality programs in the arts. The size, dimensions, specialized features and even the appropriate locations of arts instructional spaces differ from those in other subjects.

Appropriate facilities play an essential role in quality arts instruction. For example, **it is impossible to deliver a comprehensive art or music curriculum in elementary schools where teachers move from room to room with a cart.** Itinerant art teachers cannot transport clay, kilns, water and cleanup supplies from room to room, nor can they provide spaces for student work to be stored between lessons. As a result, students in such situations are denied important opportunities to view or create three-dimensional artwork and to fully experience the creating process by refining their art projects over time. Similarly, itinerant music teachers cannot transport large quantities of mallet percussion instruments, keyboards, textbooks and other supplies from room to room, nor can they provide spaces for students to engage in the creative movement and dance activities that are important for students' musical development. Parallel problems occur when appropriate dance and theatre spaces are not available. In short, inadequate facilities lead to inadequate instruction and substandard student learning.

It is important to design appropriate features into arts instructional areas during school construction and renovation. For example, hardwood stage and gymnasium floors are not ideal for dance, because leaping is more effective and safer on the more resilient surface of a sprung wooden floor. Dance rehearsal areas and music practice rooms should include mirrors so students can monitor their technical work. Music, theatre and the visual arts require substantial storage space for specialized items such as instruments, music, uniforms, props and materials. Art classrooms at all levels require space and ventilation for projects to dry, sinks and specialized built-in equipment such as kilns. Instrumental

music should be rehearsed in rooms with high ceilings and appropriate acoustics; choral groups require somewhat lower ceilings.

Facilities also play an important role in preventing teacher stress and occupational injury. For example, high levels of noise in music classrooms have been associated with damage to teachers' voices, such as vocal nodes.[5] To prevent such problems districts should provide instructional environments that enable teachers to communicate with students without having to raise their voices, such as by providing appropriate sound insulation on walls and other surfaces.

Cooperative learning group work is increasingly common in the arts. Inadequate instructional facilities are a major impediment to cooperative learning in the performing arts, because strategies often require students to make more noise than is true in most other types of classes. For example, student groups may be rehearsing music performance in small (chamber) ensembles, acting out a theatre skit which the students have written and/or rehearsed, choreographing and/or dancing to music, and creating and/or performing a work. Instructional facilities for arts classes where cooperative learning will take place should include separate soundproofed rooms adjacent to and, preferably, visible from the main classroom.

Lighting also is an important consideration in arts facilities. Visual arts classrooms require natural lighting. Photography labs and "black box" theatre rehearsal studios, on the other hand, must have no natural light at all.

Areas for dance instruction should be free of distractions, such as noise, odors and traffic. They should be near dressing, locker and shower rooms and convenient to performing spaces. Ideally they should also include mirrors and barres. Most important of all is the floor, which must be flexible enough to cushion landings and have a surface which is neither too sticky nor too slippery. Concrete floors are dangerous for dancing, as they can cause a variety of injuries.

The arts are multimedia courses, and provisions for including arts technology must be incorporated into facility designs. If school architects do not design general computer facilities to provide adequate horizontal space and electrical outlets for essential equipment such as MIDI music keyboards and digital drawing tablets, then they need to include specialized rooms with such features in the music and visual arts facilities.

Presenting students' artistic work also requires special spaces. An auditorium with adequate seating is an essential component of every school. An adequate auditorium can seat the entire student body and faculty of the school; a quality auditorium offers additional capacity for parents and community residents. The auditorium should have a number of specific features to make it useful for presenting the performing arts. For example, theatre production requires stage space with a high fidelity sound system, curtain, appropriate lighting and fly (vertical) space. Secondary schools should anticipate offering musical theatre productions by providing a music "pit" near the stage. It is not possible to design a stage that serves theatre well while still providing resonant surfaces for music performance, so some kind of moveable acoustical shell should be provided.

Schools should provide secure visual arts display spaces in highly visible areas of the school, including areas for both two- and three-dimensional work. Rehearsal areas should be located close to performance areas, either on the same level as the stage or with wide ramp access; art studio rooms should be located close to exhibit areas. All arts instructional facilities and performance areas require secure storage areas for essential materials and equipment, such as instruments, props, supplies and costumes.

Experience suggests that architects, even those who have designed numerous school facilities and profess complete confidence in their ability to design arts facilities, typically are not fully familiar with the specialized needs of such facilities. Fortunately, there are numerous resources designed to provide guidance for architects and school planners. To avoid common problems, architects planning and overseeing construction of facilities for creating and rehearsing the arts should make extensive use of these resources – some of which are listed on page 152 – and maintain careful communication with the arts faculty of the school during both the design and construction phases of the project.

**RESOURCES FOR ARTS FACILITIES**

**Facilities For All Art Forms**

- Maryland State Department of Education. *Facilities Guidelines for Fine Arts Programs.* Baltimore, MD: MDSE, 2001. (Call 401-767-0098 to order.)

**Music**

- Geerdes, Harold P. *Music Facilities: Building, Equipping and Renovating.* Reston, VA: MENC, 1987.

**Visual Arts**

- NAEA. *School Art Programs: A Guide for School Board Members and Superintendents.* Reston, VA: NAEA, 1992.
- NAEA. *Design Standards for School Art Facilities.* Reston, VA: NAEA, 1993.

**Dance**

- Additional publications in dance are available from the National Dance Association at (703) 476-3436.

**Theatre**

- Theatre materials are available from the American Alliance for Theatre and Education at (602) 965-6064.

## Instructional Materials

High-quality arts programs provide students with appropriate instructional materials.

The nature of essential arts materials differs radically from those needed for most disciplines, and even from one arts discipline to another. For example, notated music literature, commercial music recordings (audio and video) and various types of computer software are core materials for quality music programs. Art images (postcards, slides, digitized files) and software are essential for visual arts programs. Films, videos, props and costumes are essential for both theatre and dance; theatre programs also require access to scripts, while dance programs make extensive use of commercial music recordings. Consumable supplies, such as blank recording media (audio and video), are essential for the performing arts; photographic film and a wide variety of art materials are essential for visual arts instruction.

Textbooks and textbook series play important roles in many arts classes. They are often used as common resources for literature (music, visual art and theatre), cultural and historical context, information about art processes and techniques, and for developing analytical and critical concepts. General music teachers often use textbook series and accompanying resources, such as recordings, although effective K-8 general music teachers rarely move their classes sequentially through basal books. Schools should provide curriculum-based textbooks and other print resources for each student in arts classes. Library media centers should stock a supply of appropriate video, film and audio resources, as well as books about the arts and artists.

## Instructional Technology/Equipment

Quality, up-to-date arts programs designed to prepare students for life and work in the 21st century require significant technology. In fact, the arts are one of the areas in which technology should have the greatest impact on instruction.

As discussed in detail in Chapter 1, communication in our society increasingly occurs though multimedia, i.e., through the arts. To prepare students for life in a multimedia society, schools must provide students with ample opportunities to understand and use arts technology. Arts instruction also requires other specialized but less "hi-tech" equipment and furniture.

> *How do we learn about music? In the nineteenth and early twentieth centuries, playing music in school was common. The technology of recording music curbed that. Only recently have schools started to return to learning music by making it, versus just listening to it. The use of computers to learn music at a very young age is a perfect example of the benefit computers provide by offering a complete range of entry points. The computer does not limit musical access to the gifted child. Musical games, sound data tapes, and the intrinsic manipulability of digital audio are just a few of the many means through which a child can experience music. The visually inclined child may even wish to invent ways to see it.*
>
> – Nicholas Negroponte, professor of media technology at M.I.T., in his book *Being Digital*[6]

Anyone who has attended modern theatre productions, viewed television or noted the extent to which lighting enhances a dance performance has experienced – often unconsciously – the strong relationship between the arts and technology. The arts are inherently "multimedia" subjects, and the pervasive contemporary media of video and film are legitimate art forms. Schools must include the arts when developing technology plans.

Technology plays an increasingly important role in the music classroom, and ***music technology*** should play an important role in the broader school curriculum. For example:

1. Music composition can fulfill students' "technology/computer" requirements in an appealing way while delivering essential music content, developing their creative thinking and teaching the process of reflection and revision in relation to high personal standards.
2. Music composition technology is essential for enlightened, effective, relevant instruction in secondary schools. The role of compositional technology in music is analogous to the role of the word processor in language arts, but even more powerful in its potential effect on instruction. Such technology empowers individuals to create satisfying and even profound music regardless of their performance technique and notational literacy. Electronic music composition also has proven effective in reaching at-risk students.[7]
3. A variety of computer software is available for individualized instruction in music fundamentals, ear training, musical notation, composing and arranging. Interactive software is available that facilitates student exploration of music, including music theory and history. Such programs are valuable for students in all music classes, including general music and ensembles.
4. Classroom management software is particularly important to enable music teachers to use their time efficiently. Music educators often have to track the achievement of, and issue grades for, a larger number of students than most other teachers. They oversee the distribution, collection and storage of a large inventory of items that typically includes thousands of individual pieces of sheet music and expensive items such as uniforms and musical instruments. Many music teachers also use word-processing and page-layout software to design concert programs and to communicate regularly with the public through newsletter articles and press releases about performances and individual student accomplishments.
5. Internet access is an increasingly important tool for planning and delivering instruction. Music teachers (and students) can now preview scores and other materials online, read reviews of software, listen to music being considered for study or performance and even place purchase orders. They can download MIDI and audio files of accompaniments or entire works, and background information about and visual images or video of composers, historical events and cultural practices relevant to music studied in class. Students also can exchange their work with peers or expert reviewers by transmitting MIDI files online.
6. Traditional tools, such as the windup metronome and tuning fork, have evolved into much more accurate, flexible and powerful electronic devices that provide audible and visual reinforcement for developing a student's sense of rhythm and pitch. Hardware and software are available which accompany student performance. Such software can provide a full orchestral accompaniment for a solo, while following the student's expressive tempo and dynamic changes, or allow the student to perform one part in a virtual chamber ensemble.
7. Sound recording and playback devices have essential roles in the music classroom. They are necessary for presenting quality aural and visual models; for enabling teachers and students to record and listen to student work, thus facilitating teacher assessment and student self-assessment; and for preserving and editing students' musical compositions and other creative activities, both for their own personal enjoyment and to enable teachers to develop individual audio and video "portfolios" of each student's music work.

   Although the cassette tape is still the most common medium for recording student work, digital technologies for storing sound on computer disks are becoming increasingly affordable. Such technologies simplify the process of collecting and accessing high fidelity, multimedia portfolios of student work. Through digital technology, teachers and parents in an increasing number of schools have access to collections of their

students' music work that include performances and compositions as well as written work. Eventually, parent-teacher conferences will routinely take place in front of a video monitor, on which students' work will be reviewed for discussion.

Essential technology for the music classroom includes computer workstations linked through MIDI[8] interfaces and software to electronic music equipment such as keyboards, wind controllers, synthesizers, sequencers and CD-ROM drives; instructional software, including interactive CDs and recordings linked to the curriculum; classroom management and desktop publishing software; metronomes and pitch-monitoring devices, such as audiovisual tuners; and sound recording and playback equipment, such as cassette tape recorders and compact disc (CD) players linked to stereo speakers. Medium-range purchase plans should include digital technology for recording and playing back students' work. Students should be able to operate at least some of the audio and video equipment.

Technology plays an important role in quality **visual arts** instruction. For example:

1. Each elementary art classroom should include computer workstations equipped with a high-resolution color monitor, color printer, video board, CD-ROM drive, scanner and sophisticated graphics software.
2. At the secondary level, each art class should have regular access to a graphics laboratory in which each computer workstation is equipped to accommodate computer art (e.g., computer-aided design, graphics and digital photography). A graphics laboratory program, possibly shared with the technology education program, is desirable. If such a laboratory is not possible, all electronic equipment should be located in a protected area, free from dust and away from water and heat. Dust covers should be provided for all equipment, including keyboards.
3. In each K-12 art classroom, students should have access to selected computer software to create art, and to media such as CD-ROMs and the Internet that present a wide variety of art work created by others, including diverse historical periods, styles and cultures.
4. In each K-12 art classroom, computer workstations should be connected to laser or high-quality inkjet printers capable of color printing.
5. Equipment and materials for capturing and preserving images of student work are essential for art classrooms. Historically, traditional cameras and film have filled this function, but the art world is increasingly moving toward digital technologies because they offer instant imaging and review, convenient storage and retrieval, lower cost per image, and the ability to edit and transmit work electronically. These technologies enable teachers and students to preserve work for review and assessment, such as by developing and revising student portfolios. Until digital technologies are provided, every art classroom should be supplied with a camera, a substantial inventory of photographic film and a budget for film processing.
6. Art teachers should have access to the wealth of art resources available over the Internet. Entire museums are available online, including art work and background information from virtually any culture or historical period. Teachers should be able to access and download such materials for use in instruction, and students should be able to access and research such materials.

Technology is of increasing importance in the area of **theatre**. For example:

1. Specialized software can greatly facilitate students' writing of dramatic scenes.
2. Students engaged in design tasks need access to software for auto-CAD (computer-assisted design), costume design and graphic design.
3. Hardware requirements for theatre include plotters, scanners, color printers, keyboards, sound modules and MIDI connections.
4. Computerized lighting and sound controls should be available in the theatre for productions.

**Dance** programs also are making increasing use of technology. Dance instructional areas require high fidelity sound equipment. Computer-assisted design systems are commonly used to design costumes and sets, and increasingly to choreograph dance work.

School library media centers should provide convenient access to durable sound recordings representing a wide variety of music styles and cultures. They also should provide a variety of theatre and dance works, including multiple interpretations (performances) of